NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
MANNED SPACECRAFT CENTER
HOUSTON, TEXAS 77058

IN REPLY REFER TO: 70-FS55-135

AUG 19 1970

MEMORANDUM TO: See list attached

FROM : FS/Chief, Flight Support Division

SUBJECT : Minutes of ZERLINA design review meeting

1. A design review meeting for the ZERLINA Program (a variable servicer version of the LUMINARY Program) was held at NASA MSC, Houston, Texas, on August 5, 1970 in building 2, room 716, at 9:00 a.m. A list of attendees is contained in the enclosure.

2. Mr. R. Larson gave the introduction for the MIT/SDL presentation and briefly defined the agenda as follows:

WHAT VARIABLE SERVICER IS, by D. Eyles
EFFECT ON THE TELEMETRY, by R. Covelli
EFFECT ON DAP, by P. Weissman
TESTING COMPLETED, by S. Albert

3. Mr. Eyles described the implementation of the ZERLINA variable servicer program. If the reader desires details of the implementation, copies of the slides presented are available from the LUMINARY Program Engineer, Mr. T. G. Price, at extension 2308. Any questions or comments should also be directed to Mr. Price. The essential point of the implementation consists of a servicer cycle that only when it is complete calls itself again. There is a lower limit placed on the servicer cycle, so that if the cycle is less than the minimum (set to 2 seconds to be consistent with the current fixed servicer and telemetry cycles) then it "goes to sleep" and calls itself at the end of the minimum time. Also, a maximum cycle exists above which an alarm is issued, although no computational limits are engaged. The uniqueness of the ZERLINA implementation is that the servicer cycle, by calling itself when it is complete, cannot interrupt itself causing "lurkers" (commands that are stacked up and executed at a later time, causing erratic control behavior). The present implementation in LUMINARY (but for P66 only) is to drop commands if the computer is sufficiently overloaded. Therefore, the difference between LUMINARY and ZERLINA can be said to be one of "dropping" in LUMINARY (which might be extended to programs other than P66) and "stretching" in ZERLINA.

4. During his presentation Mr. Covelli showed how telemetry data can become static in the current LUMINARY Program because of the way the computations are synchronized. Then, because the ZERLINA Program may result

in a stretching of the servicer cycle, he pointed out that static data from ZERLINA is more probable.

5. Mr. Weissman then gave the areas of the Digital Auto Pilot (DAP) that may have difficulty with the variable servicer program. The attendees agreed that these areas required further investigation.

6. Miss S. Albert then discussed the testing of the ZERLINA Program that has been completed to date. Many of these tests and the results are included in LUMINARY memo #153. This presentation showed testing of the program to be adequate with the exception of the DAP area mentioned in paragraph 5.

Lynwood C. Dunseith

Enclosure

FS55:TGPrice:beb

List of Attendees

Name	Organization	Phone
C. Tillman	GAC/BPA	1306
W. G. Heffron	Bellcomm	202-484-7970
T. B. Hoekstra	Bellcomm	202-484-7959
J. L. Norton	TRW	2803
F. E. Gerth, III	TRW	2971
D. W. McClendon	TRW	2971
O. H. Cerbins	TRW	2972
F. Pearson	TRW	2891
S. C. Jankowski	TRW	2981
R. R. Covelli	MIT/SDL	
S. Albert	MIT/SDL	
P. Weissman	MIT/SDL	
R. A. Larson	MIT/SDL	109
B. McCoy	MIT/SDL	821-384
A. Cook	EG/MIT	4807
T. H. Kaiser	CF221	3048
C. O. Lewis	CF43	3436
R. W. Force	CF821	3606
C. T. Hackler	EG7	3991
D. Thorson	FC442	4707
W. F. Haldeman	FM2	6347
J. H. Alphin	FM2	4751
R. O. Nobles	FM7	4491
C. D. Sykes	FS5	2308
T. G. Price	FS5	2308
J. R. Garman	FS5	2308

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Addressees:
NASA Hqs./L. Casey, MAT
G. Roth, MAP-6
Bellcomm/W. G. Heffron
KSC/J. J. Tadich, LS-ENG-62
R. D. McCafferty, CFK
MIT/KSC/R. O'Donnell
NR/Downey/B. Schoen
MIT/SDL/D. G. Hoag
R. H. Battin
K. W Greene
A. Klumpp
R. Larson
B. McCoy
R. Covelli
GAC/Bethpage/C. Tillman
GS/R. C. Croston, 724
Link/D. L. Klingbeil (3)
TRW/Technical Library (15)
R. Charters
J. Norton
W. F. Harwood
CA/D. K. Slayton
CB/G. Cernan
V. Brand
CF/W. J. North
CF21?/C. A. Jacobson
CF23/R. W. Lindemuth
CF41/P. C. Kramer
D. K. Warren
A. G. Nolting
CF2/C. C. Thomas
M. E. Dement
CF3/C. H. Woodling
H. A. Kuehnel
CF32/J. J. Van Bockel
S. Faber
CF44/D. Mosel
CF6/T. Holloway
EA/M. A. Faget
EA2/R. A. Gardiner
ED3/I. Shead
EG/AC/K. G. Korth
EG/D. C. Cheatham
C. W. Frasier
EG/MIT/T. J. Lawton
EG2/K. J. Cox
J. W. Van Artsdalen
E. A. Lee
W. L. Wyrick
EG4/G. T. Rice
EG5/W. L. Swingle
EG6/D. W. Gilbert
EG7/C. Wasson
EG7/J. F. Hanaway
C. T. Hackler
EG8/R. E. Wilson
PA/O. G. Morris
PD/O. E. Maynard
R. J. Ward
PD5/J. F. Goree
PD141/H. Byington
PD8/W. B. Goeckler
PE7/D. T. Lockard
PF/A. Cohen
PP7/J. L. Vyner
TE/B. G. Jackson
FA/H. W. Tindall, Jr.
R. G. Rose
FC/Flight Directors (5)
FC2/C. S. Harlan
FC3/A. D. Aldrich
G. Coen
FC4/R. A. Thorson
FC5/J. C. Bostick (3)
C. B. Parker
FC6/C. B. Shelley (3)
FM/J. P. Mayer
C. R. Huss
FM2/J. H. Alphin
FM13/R. P. Parten
FM13/GAC/G. Michos
FM2/F. V. Bennett
FM3/R. H. Brown
FM4/J. C. McPherson
FM5/R. L. Berry
FM6/E. C. Lineberry
R. R. Regelbrugge
FM7/R. O. Nobles
FS/L. C. Dunseith
FS2/J. D. Watkins
T. A. Stuart
R. W. Cole
J. E. Broadfoot
FS6/J. R. Gilbert
J. A. Miller
FS5/J. C. Stokes, Jr.
T. F. Gibson, Jr.
L. J. Dungan
J. R. Roundtree
J. E. Williams, Jr.
T. G. Price
G. R. Sabionski
J. A. Martin, Jr.
T. D. Keeton
J. R. Garman
J. W. Jurgensen
C. D. Sykes